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AUTHOR Turker, A. Vural
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ABSTRACT

Vocational education planning is complex and extensive and requires the proper and adequate involvement of business and industry circles in program development. To rebuild their institutions and replenish adversely affected systems and depleted resources after World War II, industrialized nations have implemented education and training for employment. The national and community conscience about training has, in turn, resulted in program development systems, validation processes, and a wide spectrum of approved achievement testing procedures. At the program development level, the emphasis has moved from syllabus to curriculum and in favor of programs equally concerned about process and product. Programs are developed to cater to individual differences and preferences. As program relevance has gained importance, useful and purposeful linkages between school and industry and commerce have also become significant. The Technician Training Project in Turkey has as its purpose the conversion of postsecondary institutions of vocational education into modern well-equipped centers for the training of higher level technicians. The project is intended to develop new curricula for two-year programs. A predominant condition is close collaboration with industry in the program development. (YLB)

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FRUITFUL LINKAGES WITH BUSINESS AND INDUSTRY IN PROGRAM DEVELOPMENT: RECENT TRENDS IN INDUSTRIALIZED NATIONS AND SOME EFFECTIVE EXAMPLES FROM TURKEY

A paper presented by

Dr A Vural Turker

Administrator/Coordinator

Technician Training Project

Council of Higher Education of Turkey

U.S. DEPARTMENT OF EDUCATION
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Dr A Vural Turker

1. Introduction

In the Eighth Yearbook of the American Vocational Association which was published in 1978, Lamar, Gyuso, Burkett and Gray state that "comprehensive planning (in vocational education) is the process of forecasting the future and then preparing for it," and stress the point that "vocational educators need to visualize clearly the basic concept of comprehensive planning, a term that is being used more frequently by leaders in government, industry, and education as they attempt to find a more effective way to improve the planning process."

The same authors later provide a definition of comprehensive planning by Wright (1969), as follows:

> Comprehensive planning is a process of designing programs and allocating resources to achieve specific objectives, then modifying and improving those activities through continuous evaluation of how well the objectives are reached. It requires utilization of all available and applicable planning technologies, widespread involvement of those concerned with the results of planning - those who design and operate the system, those who pay the bills, those who are affected by the system, those who - in other agencies - have overlapping and/or related responsibilities, and those who control - or tap needed resources - and mechanisms for facilitating and coordinating the highest quality planning.

This concept of comprehensive planning and the above definition itself are good examples of some effective ways and approaches often employed in highly industrialized countries in all attempts of significant magnitude including the ones in education. Planning of vocational education and development of educational or instructional programs are such important endeavors to be considered with all of their necessary dimensions for the benefit of all parties concerned.

Lamar et al, employing a systems approach toward the planning of vocational education, identify the following nine major elements on each of which substantial data or information have to be gathered in order to be able to come up with some satisfactory results: (1) the learner, (2) the labor market, (3) job and career competencies, (4) the educational resources, (5) vocational education programs, services and activities in existence, (6) the delivery system definitions and structural articulation, (7) the participants, (8) the legislative and governance requirements, and (9) the philosophical and value positions.

This presentation, accepting the complexity and extent of such planning, deals only with the proper and adequate involvement of business and industry circles in program development and the fruitful linkages to be achieved in this connection through a short review of certain trends in the development of such linkages in highly industrialized nations and a summary of the outcomes of some recent efforts in Turkey.

II. The Changing Times

In the years following the end of World War II, certain industrialized nations of the world initiated a variety of major efforts to rebuild their institutions and economies and to replenish their adversely affected systems and depleted resources. The economic growth rates of such war-ridden countries as Germany and Japan were elevated up to 8 to 10 percent annually while the United States showed an impressive 5 percent annual growth rate.

The high rates of unemployment experienced in the 1930's, the need to increase the technical manpower in the armed forces during World War II, the requirements of a rapidly developing technologically complex society, the impact of the placement of Sputnik in space by the Soviets, increasing social welfare needs, and the unique needs of the handicapped, had, over the years, convinced the Federal Government on the necessities of initiating some serious efforts for a number of new manpower programs. The productive results of such efforts were the Area Redevelopment Act (ARA) of 1961, the Manpower Development and Training Act (MDTA) of 1962, the Economic Opportunity Act of 1964, and the Civil Rights Act of 1964. Some

more recent legislation to improve vocational training possibilities are the Comprehensive Employment and Training Act (CETA), the Job Training Partnership Act (JTPA), and the Carl Perkins Vocational Education Act.

During the same era, a considerable number of nations in Europe or elsewhere in the world, also felt the need to review their manpower outlook with a critical eye to do better, and some, with the financial and technical assistance of The Marshall Aid, took similar steps to promote employment through changes in their national manpower policies and educational and training institutions. Correspondingly in the United Kingdom, under the impetus of Socialist ideals and the direction of a Labour Government the foundations were laid for a long-term continuum of reform at all levels of the Education System. But with particular reference to Technical and Vocational Education and Industrial Training. During the period 1946-1952 considerable budgets were deployed by both Central and Local Governments to the substantive up-grading of all forms of non-University Technical and Skill-Based Vocational Education. The Industrial Training Act (1964) and the establishment of the Manpower Services Commission provided the statutory means whereby a new infrastructure was promoted as the basis for (a) ensuring a higher level of correlation between the orientation and nature of training processes and the proven priority manpower needs of the economy, and (b) more closely linking the theoretical and practical (industry-located) components of technical and vocational education, primarily in pursuit of the goal of relevance. With the fast development of and rapid access to new technologies as well as modern employment measures, peoples in industrialized nations especially, with the passage of time, have started showing some lifestyle characteristics that were somewhat like those adopted by Americans.

Milbergs (1975) summarizes these new lifestyle characteristics as follows:

- Quality over quantity
- Persons over institutions
- Individualism over conformity
- Sufficiency over abundance
- Experience over materialism
- Meaningful over the impressive
- Knowledge over power
- Concern for responding personally to society and global issues.

According to Milbergs, the two other important trends to be watched in the 1980's are the economic restructuring of the country and the shift towards "a communication, information and knowledge-based society." These same trends are in operation in a number of developed and speedily developing countries also. Turkey is one of these fast developing nations.

Burkett (1975) lists the present work force delivery structure in the United States in nine major groups:

(1) Institutional
(2) On-the-job training
(3) Armed forces
(4) Vocational rehabilitation
(5) Veterans' assistance
(6) Federally funded and administered programs for unemployed, underemployed and special populations
(7) Employer and employee sponsored programs
(8) Philanthropic groups
(9) Special programs of governmental agencies.

Again, the outlook of the nature of such institutions in other industrialized and developing countries give a somewhat similar picture. It may then be said that there exist some certain resembling forces operating in the world creating a number of trends not much different from one another.

III. Education and Training for Employment

The title allocated to this section of the paper serves to demand caution in respect of how the terms 'Education' and 'Training' are articulated. In order to avoid the traps and pitfalls which may accompany a semantic digression, sufficient to restate the views that 'training' of some form or other, at some level or other is an ever-present in the educational process. The terms are being used for the purpose of this paper therefore to refer to the processes of human learning which occur in the 'school' and 'work' environment respectively and which, collectively, contribute to the achievement of a range of pre-determined program objectives.

It would be folly to dismiss this relationship of terms in one mere paragraph. Coherent program planning which seeks the ideal and total integration of school-based and work-based learning activity and outcomes demands, virtually as a prerequisite, the acceptance of the following basic 'rules':-

Rule I: the age-old distinction between 'theory' and 'practice' serves no useful purpose and, in fact, tends to counter the view that the achievement and realisation of a totally integrated programme of technical or vocational 'preparation' is a practical possibility;

Rule II: the 'theory' (so called) components of a programme should be justified on the grounds of defining, explaining, accounting for the nature, form and evolution of practice or practices; some theoretical inclusions will be justified on the basis of their inclusion being necessary if the learner is to assume responsibility for the extension of 'formal' learning or, indeed, the continuing process of retraining or 'up-dating';

Rule III School-based and work-based learning should, if effectively planned and managed, entail the combination of knowledge, information, skill and attitudinal based learning; the awakening of empathy for the knowledge 'bestowed' in the classroom should develop in the work situation; this is the operational climate in which 'mastery' is achieved and where 'the bits fit together'.

Arising out of these initial statements therefore a comprehensive rationale for preparation for employment, no matter at what level appears.

The 'cornerstones' of this rationale may be described in the following terms:-

(a) if we are truly to prepare young people for the realities of employment then the genesis of any program exists in the demands, pressures, circumstances and behaviours of the work place; the indices to which we refer have both a 'generalised' and 'specialised' orientation; the 'generalised' orientation is very much attitudinal as it applies to, for example, 'standards'; 'reliability'; 'responsibility'; 'loyalty'; and 'cooperation';

(b) the program data-base is therefore arrived at following an in-situ investigation of what kinds of change (developmental) processes must be negotiated by the individual in order that the requisite levels of awareness, competency, adaptability, confidence and motivation are achieved;

(c) program development is a constantly evolving process if the claims of relevance are to be upheld;

(d) the process of program evolution must be 'engineered' on a collaborative basis with Industry or Commerce (the clients) if, in the judgement of employers the programs are to acquire credibility and wider social appeal;

(e) if the learners who experience the program are to rapidly recognize and believe that there is a preconceived harmony of school and work based learning, it follows that the form and information of technical language used in the school must be compatible with that of the work environment; further the tasks of the school based component must be liberally inclusive of simulation exercises, economic time limitations, typical and authentically expressed problems and malfunctions and, finally, supervision and work-quality requirements which would be equated with those normally applying in a highly successful business enterprise; and

(f) a characteristic, which for the time being, may be regarded as the 'final' cornerstone if only because of its complex and difficult nature, namely the need to ensure that school-based Instructors are, in addition to being the founts of knowledge, truly creatures of the industrial work climate; it may be claimed that this quality will either hold the whole 'thing' together or render it open to ridicule.

Program development at the post-secondary level should, not least in view of the pace of technological development and application and the substantive and frequent shifts in market forces, always accommodate and make provisions for the assumption that the majority of our young people will, during the course of a working life, be required to perform many different jobs and, contrastingly, experience periods of partial or total unemployment.

One final comment in this section. This is once again, and without apologies, directed to the issue of program relevance. As training costs increase, skills become more complex and competition more intense, relevance assumes paramount importance. Longitudinal studies of graduate performance and adjustment over the initial three years of employment should be envisaged as the principal form of feed-back data required by the training establishment. Additionally the dialogue with Industry must be maintained and the fluctuations in the fortunes of the affiliated enterprises noted, not merely for the record but as the basis on which the training institution may be proactive and thereby demonstrate a business conscience and a practical awareness.

IV. Some Recent Trends in Program Development

There was a time, not very long ago, when, in many countries, particularly those of Western Europe, Training Costs were discretely hidden in the Annual Statement of Accounts. This frequently came about because of the view held by Company Board Members that there was little point in investing scarce financial resources in the training of the majority of work-people when it was known full well that sooner or later they would leave the Company and work elsewhere. In other words, 'Why should we invest in training for the benefit of other employers?'. One most remarkable change therefore in the course of the past 20 years and particularly in respect of member Countries of the EEC, has been the emergence of a national and community conscience about training. Furthermore the conscience has been 'institutionalised' by the appearance of national policies on the general theme of 'Preparing for Work' each of which clearly acknowledges that people, their skills, interests, talents and knowledge, are a very vital national resource. This, coupled with the constant desire to achieve equality of opportunity and the elimination of the more obscure and long-standing forms of discrimination, has, in many cases resulted in the establishment of national bodies having the responsibility to (a) secure program provision on a wide scale such as to take account of manpower needs of the economy and the interests and preferences of individuals; (b) ensure that standards are established and maintained; (c) observe that programs are properly and adequately resourced; (d) that the quality of teaching is satisfactory and that the Instructors are adequately qualified, trained and retrained; and (e) that programmes are regularly updated such as to reflect the changing demands of the various occupations.

All this has, in turn, resulted in the emergence of program development systems, validation processes and a wide spectrum of approved achievement testing procedures. Collectively these systems and processes are directed at establishing accountability and socio-economic credibility.

At the level of program development the emphasis has rightly moved from 'Syllabus' to 'Curriculum'. Once again a shift in the direction of enforcing accountability. The distinctive features of curriculum are:-

a) the concern for the processes of learning and application;
b) the requirement that all the 'parts' of the program shall be mutually supportive and thereby form a coherent 'whole';
c) the assimilation of assessment within the curriculum structure, and
d) the overall outcomes being predetermined in terms of categories and levels of performance.

Furthermore the emphasis has distinctively moved in favour of programs which are equally concerned about 'process' and 'product'. An absolute necessity where one aim of the program is to demonstrably develop the ability of the learner to define and successfully complete study tasks on a self-directed basis.

And then again, increasingly programs are developed to cater for individual differences and preferences. Modular structures are common-place and optional modules usually exist increasingly as the program is negotiated. Whether or not it is the student's choice which determines the 'package' of study to be undertaken is open to question. Regrettably much evidence points to the accessibility to 'options' being controlled by administrative, organisational and resource factors.

The 'sandwich' approach to structuring a program which has, for long, found favour in Britain encounters difficulties in areas where the level of unemployment is high, unless that is, central Government funds are available to lubricate the 'mechanism'! Sandwich courses embrace the assumption that the acquisition of new learning should be promptly followed by a structured program of application and skill rehearsal within the industrial environment.

The overall pattern of the program is therefore characterised by alternating periods of time spent in school and industry respectively. With the passing of programme time learning becomes increasingly 'problem centered' and the 'Project' mode of assessment consequently comes to the fore.

It is usual for the initial post-secondary program of Vocational and Technical Education to commence from a fairly generalised 'base' and to then develop in the direction of relative specialisation. Similarly the first year of a program is likely to be developed about a 'common core' of studies which have inherent relevance to 'families' of specialisms and related job specifications. In referring to this feature I am not merely pointing to conventional 'core' studies as represented by Mathematics, Science, the indigenous language and so on. Particularly am I drawing attention to the vital skill components of any vocational programme, namely:-

- communication skills;
- interpersonal skills;
- problem-solving skills, and
- study skills.

With reference to performance assessment, many programs have sensibly substantially dispensed with the long-established 'end-of-year' and 'end-of-program' examinations which largely favoured verbal reasoning ability and the related facility to write quickly and legibly, and introduced 'periodic' or 'phase-testing'. This development overtly confirms that the process of performance assessment is an integral part of the curriculum; that it is intended, by its outcomes, to inform the learner of his personal program status; that the process should lead to the prompt diagnosis of misunderstandings and/or 'gaps' in learning.

Summarizing then, program development appears to be moving, regularly, in the direction of:- (a) justifiable purpose; (b) well-conceived structure; (c) flexibility to accommodate change and, continuously, the individualised needs of learners; (d) confirming that programs are primarily the vehicles whereby learning rather than instructing is promoted; (e) achieving social credibility through the ability to confirm relevance.

V. Useful and Purposeful Linkages

Much has been implied regarding the importance of program relevance. This now brings me to a consideration of what might be termed 'Useful and Purposeful Linkages between School and Industry and Commerce'.

Let me emphasize that in my view, all such linkages must fundamentally be designed and implemented with a view to securing enhanced efficiency. That is, improved program efficiency through the discriminating development, resourcing, operation and management of programs and their resource facilities. Secondly, the world of today (and the future) increasingly requires that we utilize time effectively and economically. It is not necessary, given the recent development of Information Technology, to demand 3 years to achieve a Bachelor's degree given that the undergraduates are, supposedly, the 'cream' of our young people. Last, but certainly not least, the training has to be efficient such that enterprises who employ our graduates may be more efficient operationally and thereby have the 'edge' in the increasingly competitive markets.

The most effective 'linkages' are those which involve organisational and personal connections that have their origin in common purpose and mutual confidence.

Organizationally some well-tried and established forms of linkage may be summarized as:-

- local industrialists on the School Board or Industrial Advisory Committee;

- o industry, through its facilities and resources, operationalizing an arrangement whereby Instructors may re-enter industry for short intensive periods of up-dating know-how and coming to terms with the organisation of and the pressures relating to a range of job functions;

- o industry offering advice on the development of laboratory and workshop facilities with the purpose of achieving replication of the industrial work scene and ensuring compatibility of industrial and curriculum equipment and processes;

- o the Schools adequately informing Industry of its programs; in fact, involving industrial representatives in the program development process;

- o Industry making available adequate numbers of appropriate work places for trainees and curriculum-related work opportunities.

Information is the matter to which I would suggest greater attention should be paid. It is necessary for schools to market their programs and facilities in an engaging and sophisticated manner. Information about school policy, developments, achievements and facilities available to constantly service the needs of local industry should be disseminated on a regular basis.

VI. Developments within the Educational System of the Republic of Turkey

Turkey is the scene of much activity aimed collectively at strengthening the economy, enhancing the status of the country as an Industrialised nation and improving the quality of life of our citizens.

Time does not permit me within this paper to even introduce by name all the many Projects which are currently being implemented or planned within the

Republic. Sufficient to say that they are numerous and relate directly to the major institutions within our Society.

Allow me, however, to make reference to one particular Project with which I have now been intimately involved from its very beginnings some five or more years ago. I refer to the Technician Training Project being promoted under the aegis of the Council for Higher Education (YöK) and financed by a substantial loan from the International Development Bank (The World Bank).

This project, which initially had a life of 2½ years, was intended to:-

- o convert eight post secondary institutions of Vocational Education into modern well-equipped centres for the training, through programs of two-years duration, higher level technicians (TEKNIKER);
- o develop new curricula in twelve priority technical/industrial specialisms each of which had strong links with the Turkish export drive;
- o procure equipment to resource the programs;
- o train a new cadre of Instructors;
- o train the School Managers;
- o develop a new system of Validation and Assessment;
- o train Instructor-Trainers.

A predominant condition of the Loan Agreement was that the new Curricula should be developed arising out of close collaboration with Industry and that a significant percentage of total program time should be utilised for 'Industry-Based Learning'.

Each of the new two-year programs is quantified as 82 weeks, that is 41 weeks for each year. Within each year some 13 of the 41 weeks are devoted to 'Industry-Based Learning' on the basis of approved industrial placements.

In developing the curricula every attempt was made to ensure that one key outcome was that of 'Industry-Based Learning' being well and truly a totally integrated component of the programme. Industry-based work-tasks and skill rehearsal activities were therefore specified and detailed within the respective curriculum documents.

How did we seek to ensure that the operation would succeed? Initially we established a Program Committee to service each major program development area. The Committees comprised members drawn from industry, the Universities, the Client Organisation and the Consultancy. Industrial representatives were drawn from all levels of line-management.

Prior to commencing program development an Industry-Based Training Needs Survey was initiated to involve 200 major enterprises and to determine Industry's perception of manpower shortages and the training requirements of personnel to be engaged at the higher Technician level.

Arising out of the survey it was possible to define the Job Specifications of a wide range of industrial technicians. The Job Specification was, in each case, taken as the datum line for program development.

As each curriculum outline was developed Industry was consulted regarding orientation, balance and level of competencies. This operation marked the onset of a highly successful and continuing dialogue with Industry.

Completed programs were then validated internally by the Consultancy and YöK Counterpart personnel prior to being presented to the respective Program Committees. The validating process was conducted in a very thorough manner, account being taken of all the observations being represented by the Industrial members. Their contributions were perceptive and constructive. The initial credibility was therefore secured by virtue of the successful operation of the 'partnership principle'. Effective 'linkage' indeed!

The Project Schools assumed responsibility for publicising both the Project and the programs to neighbouring Industry. This was an initiative which ultimately led to each school negotiating with Industry to secure the requisite number of training places. To facilitate the operation each school appointed an 'Industry-based Learning Coordinator', which, in each case proved to be a well-qualified Instructor having a real grasp of the local industrial scene and the problems related thereto. Training programs designed to equip the IBL Coordinators to fulfil their function were initiated and are continuing.

The arrangement has led to 'purpose' being introduced to industry-based activity; it has resulted in teachers (the personal aspect) frequently visiting industrial enterprises; school management has initiated arrangements whereby colleagues from Industry frequently visit the schools for the purpose of consultation and an exchange of views and ideas. With the completion of the equipment installation process it is the intention that each school will pro-actively move to consolidate the links thus established by offering to local industry facilities whereby skill-updating can be provided in the school jointly by school and industrial personnel.

Harmonious relationships are certainly underpinning what is an outstandingly successful Project.

Epilogue. That the links between School and Industry are important is without question if Vocational and Technical Education is to positively contribute to the health and development of the Economy. That it is the responsibility of the School to take the initiative is equally without question. Our graduates will secure employment if they are well-trained. Better trained than the rest. The criterion by which their quality is determined is that formulated by Industry! it is the responsibility of the School to take the initiative and 'get it right'. Otherwise we may be graduating young people for a life of unemployment.